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Award Number: DAMD17-01-1-0578

TITLE: Breast Cancer Susceptibility and DNA Damage/Repair

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REPORT DATE: June 2002

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
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20030513 102

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 074-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2002	3. REPORT TYPE AND DATES COVERED Annual (1 Jun 01 - 31 May 02)	
4. TITLE AND SUBTITLE Breast Cancer Susceptibility and DNA Damage/Repair			5. FUNDING NUMBERS DAMD17-01-1-0578	
6. AUTHOR(S) : Roy E. Shore, Ph.D. Email: roy.shore@med.nyu.edu				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) New York University School of Medicine New York, New York 10016			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words) none provided				
14. SUBJECT TERMS breast cancer			15. NUMBER OF PAGES 4	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

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Progress Report, May 2001 – May 2002
“Breast Cancer Susceptibility and DNA Damage/Repair”

U.S. Department of the Army
Grant # DAMD17-01-1-0578

The study is based on breast cancer cases and matched controls from a cohort of women (New York University Women's Health Study—NYUWHS) who have been followed up for 7-13 years since they donated a blood sample and completed a health, lifestyle and dietary questionnaire to determine the incidence of breast cancer. The original proposal was to genotype 6 polymorphisms in the genetic pathways for DNA repair or protection against DNA damage in 200 cases and 200 matched controls.


We expanded the study to 300 cases and 300 controls. For about 40% of subjects we had blood clots or cell aggregates (left after separating out the serum) from which to extract DNA, but for the remainder we had to extract it from the serum. There was abundant DNA in the clots and cell aggregates but much less in the serum.

Before genotyping a locus we conducted a quality control/validity check. This included performing analyses on two samples from each of about 70 women. We concentrated on the adequacy of the DNA samples from serum because of concerns about the amount and integrity of the DNA in serum and therefore ran 50 pairs comparing a serum and clot sample. For one locus we found that we had to adjust the conditions of the PCR and hybridization for the serum-based DNA in order to get good agreement with the corresponding clot-based DNA. Had we not run this comparison, we would not have known that the serum-based DNA was giving us inaccurate readings based on our initial optimization.

We have completed the genotyping of three of the proposed loci (XPD, XRCC1 and MnSod) and are in the midst of analyzing those data.

We have requested an unfunded extension of the study for another year (until June 30, 2003). The other three loci will be completed and the results written up during that time period.

Signed: _____


Roy E. Shore, PhD, DrPH